

**Work Order ID 77227**

November-30-11 6:33:52 AM

**\*77227\***

Page 1

Item ID: D212-664-107TRN

Revision ID: ~~TR~~

Item Name: Crosstube Turning Detail

Start Date: 11/30/11 Start Qty: 1.00

Required Date: 12/02/11 Req'd Qty: 1.00

Reference:

Accept

**\*N900040100\***Setup Start **\*NS1\***Stop **\*NS2\***

Cust Item ID:

Customer:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursTool ID Tool # Plan  
Code Accept Reject Reject Insp.  
Qty Qty Number Stamp

Draw Nbr

Revision Nbr

D212-664-147

Rev B(DE0)

DSI9562

100

0.00

**\*100\***

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand &amp; install plugs DT8534 on both ends as per Folio FA705

2-Turn first side as per Folio FA113

3-Blend transition lines only, \*\*do not sand whole tube\*\*:

FOLIO REV: AADWG REV: B

\*Use mill bastard file, brush file repeatedly with file card.

\*Do not use sandpaper coarser than 320 grit.

110

QC1- Inspect dimensions to dimension sheet

0.00

**\*110\***

QC

Memo

0.00

Quality Control

M.M.L 11/11/30

M.M.L 11/11/30

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

**Work Order ID 77227**

November-30-11 6:33:52 AM

**\*77227\***

Page 2

Item ID: D212-664-107TRN

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID: U/R

Stop **\*NS2\***

Item Name: Crosstube Turning Detail

Start Date: 11/30/11 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 12/02/11 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursTool ID Tool # Plan  
Code Accept Reject Reject Insp.  
Qty Qty Number Stamp

120

0.00

**\*120\***

MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA705

2-Blend transition lines only, \*\*do not sand whole tube\*\*:

\*Use mill bastard file, brush file repeatedly with file card.

\*Do not use sandpaper coarser than 320 grit.

FOLIO REV: ABDWG REV: 2

3- Remove plugs and sand

*MM.L 11/11/30*

130

QC1- Inspect dimensions to dimension sheet

0.00

**\*130\***

QC

Memo

0.00

Quality Control

*MM.L 11/11/30*

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

NOTE: Date & initial all entries

# Work Order ID 77227

November-30-11 6:33:52 AM

**\*77227\***

Page 3

Item ID: D212-664-107TRN

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID: U/R

Stop **\*NS2\***

Item Name: Crosstube Turning Detail

Start Date: 11/30/11 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 12/02/11 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: Date:

Tooling: Date:

Run Start **\*NR1\***

QC: Date:

SPC (Y/N): Date:

Stop **\*NR2\***

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

140

QC8- Inspect parts - second check

0.00

**\*140\***

QC

Memo

0.00

Quality Control

*DP*

*11-12-2*

145

0.00

**\*145\***

Crosstubes

Memo

0.00

Crosstubes

GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.

*1 6*

*mm.l 11/12/05*

150

Crosstubes Chemical Conversion

0.00

**\*150\***

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

*JW*

*11-12-06*

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

**Work Order ID 77227**

November-30-11 6:33:52 AM

**\*77227\***

Page 4

Item ID: D212-664-107TRN

Revision ID: U/R

Item Name: Crosstube Turning Detail

Start Date: 11/30/11 Start Qty: 1.00

Required Date: 12/02/11 Req'd Qty: 1.00

Reference:

Accept

**\*N900040100\***Setup Start **\*NS1\***Stop **\*NS2\***

Cust Item ID:

Customer:

Approvals: Process Plan: Date:

QC: Date:

Tooling:

SPC (Y/N):

Date:

Date:

Run Start **\*NR1\***Stop **\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

160

QC3- Inspect Part Finish

0.00

**\*160\***

QC

Memo

0.00

Quality Control

SD D 11-12-07

170

Packaging

0.00

**\*170\***

Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack  
Location: 46

M.M.L 11/12/07

180

QC21- Final Inspection - Work Order Release

0.00

**\*180\***

QC

Memo

0.00

Quality Control

11/12/07  
MF 11-12-07

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



# Picklist Print

November-30-11 6:33:52 AM

Page 1

Work Order ID: 77227

Parent Item: D212-664-107TRN

Parent Item Name: Crosstube Turning Detail

Start Date: 11/30/11

Required Date: 12/02/11

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A New Issue 08-03-06 DD Verified by:ec  
IPP Rev B Removed polish 08.04.02 EC verified: DD

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| D6049-128                       |                        | Manufactured  | No          |                     |                  | 110             | Each               | 1.0000         | 1           | 1            |               |                |        |

Crosstube Material

D6005-128

Location

Loc Qty

Loc Code

LG

1

32310

1

DSI 9562

B 67797

1

QMMIC 11/11/30

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

|  |                                  |
|--|----------------------------------|
| <b>DART AEROSPACE LTD</b>                                    | <b>Work Order:</b> 47227         |
| <b>Description:</b> Crosstube Assembly (205/212/412 Low Fwd) | <b>Part Number:</b> D212-664-147 |
| <b>Inspection Dwg:</b> D212-664-147 Rev: B                   | <b>Page 1 of 1</b>               |

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

| Inspection Sheet<br>Drawing Dimension | Tolerance | Actual<br>Dimension | Accept  | Reject | Method of<br>Inspection | Comments  |
|---------------------------------------|-----------|---------------------|---------|--------|-------------------------|-----------|
| SIDE A                                | 0.313     | +/-0.010            | 313     | ✓      | vern                    | CNC-08    |
|                                       | 2.360     | +0.005/-0.000       | 2.362   | ✓      | ✓                       |           |
|                                       | 2.360     | +0.005/-0.000       | 2.362   | ✓      | ✓                       |           |
|                                       | 2.366     | +0.005/-0.000       | 2.366   | ✓      | ✓                       |           |
|                                       | 2.473     | +0.005/-0.000       | 2.478   | ✓      | ✓                       |           |
|                                       | 2.573     | +0.005/-0.000       | 2.573   | ✓      | ✓                       |           |
|                                       | 2.673     | +0.005/-0.000       | 2.677   | ✓      | ✓                       |           |
|                                       | 2.750     | +0.005/-0.000       | 2.750   | ✓      | ✓                       |           |
|                                       | 2.750     | +0.005/-0.000       | 2.750   | ✓      | ✓                       |           |
|                                       |           |                     |         |        |                         |           |
| SIDE B                                | 0.313     | +/-0.010            | 313     | ✓      | vern                    | CNC-08    |
|                                       | 2.360     | +0.005/-0.000       | 2.362   | ✓      | ✓                       |           |
|                                       | 2.360     | +0.005/-0.000       | 2.362   | ✓      | ✓                       |           |
|                                       | 2.366     | +0.005/-0.000       | 2.367   | ✓      | ✓                       |           |
|                                       | 2.473     | +0.005/-0.000       | 2.478   | ✓      | ✓                       |           |
|                                       | 2.573     | +0.005/-0.000       | 2.573   | ✓      | ✓                       |           |
|                                       | 2.673     | +0.005/-0.000       | 2.678   | ✓      | ✓                       |           |
|                                       | 2.750     | +0.005/-0.000       | 2.750   | ✓      | ✓                       |           |
|                                       | 2.750     | +0.005/-0.000       | 2.750   | ✓      | ✓                       |           |
|                                       |           |                     |         |        |                         |           |
|                                       | 0.126.528 | +/-0.020            | 126.535 | ✓      | tape                    | 2197.1-02 |

|                           |                                |                            |     |
|---------------------------|--------------------------------|----------------------------|-----|
| <b>Measured by:</b> gmm/L | <b>Audited by:</b> [Signature] | <b>Prototype Approval:</b> | N/A |
| <b>Date:</b> 11/11/30     | <b>Date:</b> 11-12-2           | <b>Date:</b>               | N/A |

| Rev | Date     | Change                       | Revised by | Approved |
|-----|----------|------------------------------|------------|----------|
| A   | 08.11.07 | New Issue (P/O D212-664-107) | KJ/EC      |          |
| B   | 10.02.02 | Dimension 126.528 was 126.53 | KJ         |          |

| Item | Qty<br>-147 | Qty<br>-147B | Part Number       | Description   |
|------|-------------|--------------|-------------------|---|
| 1    | X           |              | D212-664-147      | CROSSTUBE ASSEMBLY (205/212/412 LOW FWD)  |
| 2    |             | X            | D212-664-147B     | CROSSTUBE ASSEMBLY (214 LOW FWD)  |
| 3    | 1           | 1            | D6019-128         | CROSSTUBE   |
| 4    | 2           | 2            | D2893-1           | SUPPORT   |
| 5    | 4           | 4            | D3595-063-450     | RUBBER CUSHION  |
| 6    | 2           | 2            | D3659-1           | CUFF  |
| 7    | 4           | 4            | MS21920-25        | CLAMP (OR MS21920-26)   |
| 8    | 44          | 44           | CR3212-4-06       | RIVET (OR M7885/3-4-06)   |
| 9    | A/R         | A/R          | MAGNOBOND 6398    | ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE<br>(TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2<br>ADHESIVE) |
| 10   | A/R         | A/R          | SIKAFLEX-241/-291 | SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS<br>B2 SEALANT)  |

#### GENERAL NOTES:

- MATERIAL: MANUFACTURED FROM D6019-128  
FINISHED LENGTH = 126.528-0.020 (BEFORE BENDING/TRIMMING)
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF  
USING VIBRATING STYLUS.
- WEIGHT: D212-664-147 = 24.2 lbs (PER IIN-D212-664)  
D212-664-147B = 24.2 lbs (PER IIN-D212-664)
- PART IS SYMMETRIC ABOUT CENTERLINE.
- WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD  
BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6%  
BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF  
D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER  
INSTALLATION AND PRIOR TO PACKAGING.
- INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1  
SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE  
SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS.  
DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE  
UNACCEPTABLE.
- TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS  
NOT BOTTOMED-OUT AFTER TORQUING.
- INSTALL D3659-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF  
SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE.  
SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

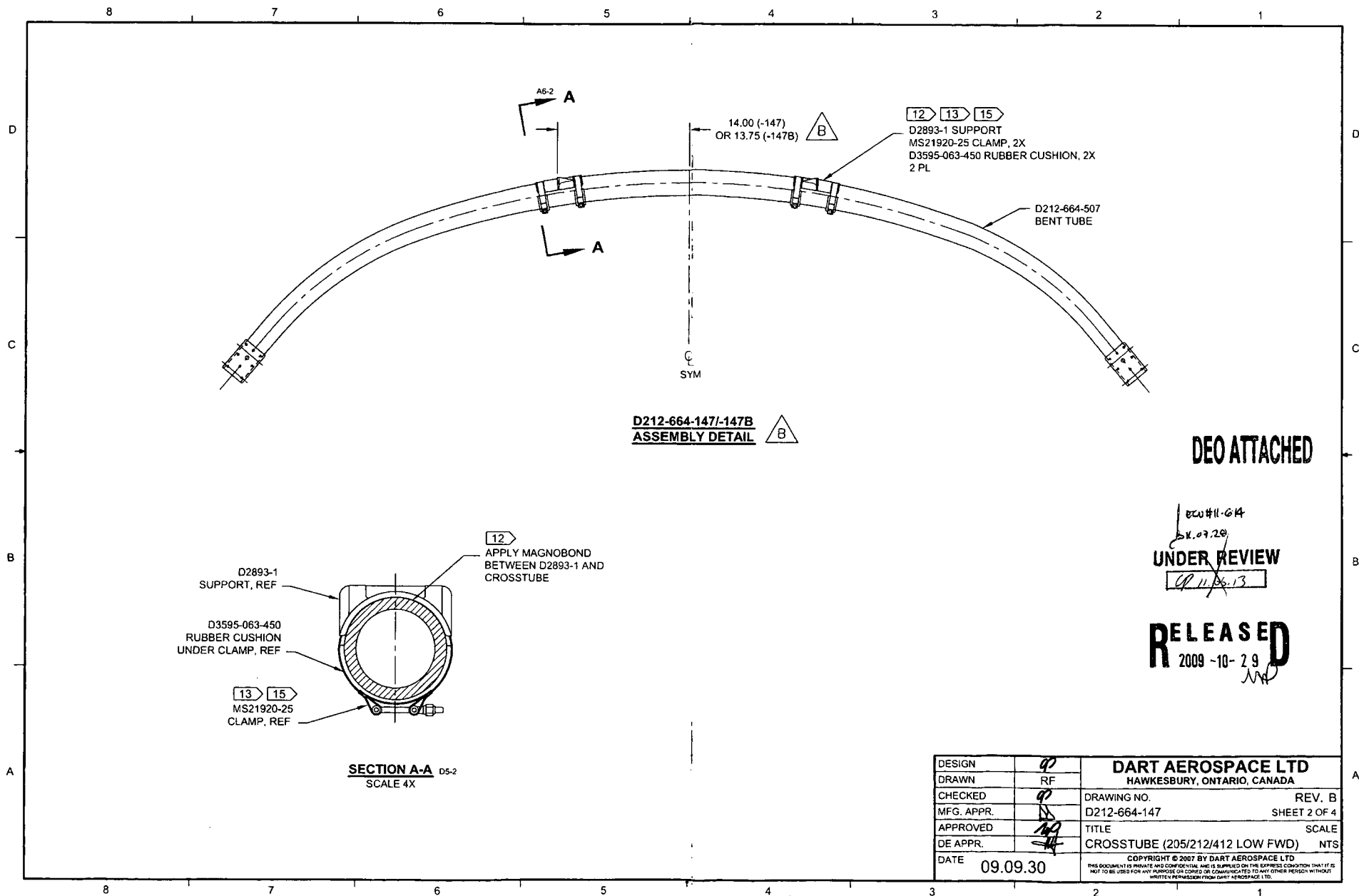
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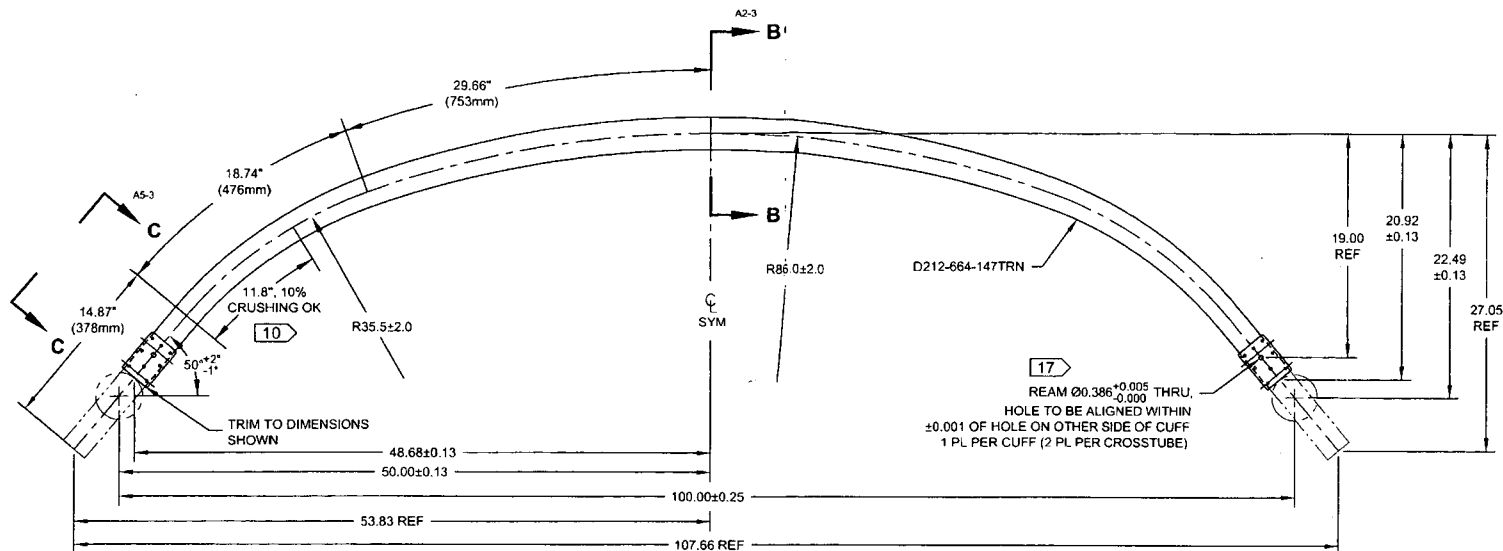
Per ECN#1164  
11.07.20  
UNDER REVIEW

RELEASED  
2009-10-29

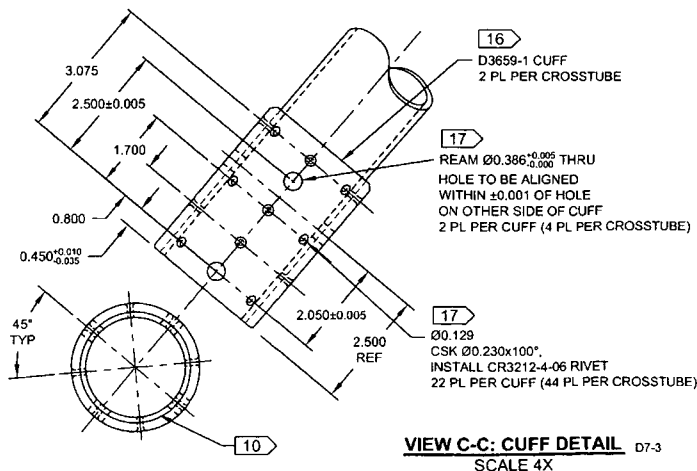
W/077227

|            |   |  |              |
|------------|---|--|--------------|
| B          | REVISE GENERAL NOTES/PART LIST: UPDATE TO<br>CURRENT STANDARDS: ADD -147B (ZN C4-2, D4-2) | RF   | 09.09.30     |
| A          | NEW ISSUE   | CP   | 07.07.07     |
| REV.       | DESCRIPTION   | BY   | DATE         |
| DESIGN     | RF  | DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA  |              |
| DRAWN      | RF  | DRAWING NO.  | REV. B       |
| CHECKED    | RF  | D212-664-147   | SHEET 1 OF 4 |
| MFG. APPR. | RF  | TITLE  | SCALE        |
| DE APPR.   | RF  | CROSSTUBE (205/212/412 LOW FWD)  | NTS          |
| DATE       | 09.09.30  | COPYRIGHT © 2007 BY DART AEROSPACE LTD<br>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS<br>NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMERCIALIZED TO ANY OTHER PERSON WITHOUT<br>WRITTEN PERMISSION FROM DART AEROSPACE LTD. |              |

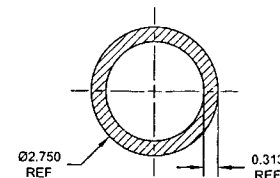




**D212-664-507**  
**BENDING AND DRILLING DETAIL** 10 B



**VIEW C-C: CUFF DETAIL** D7-3  
 SCALE 4X



**SECTION B-B** D5-3  
 SCALE 4X

D212-664  
 09.07.20  
 UNDER REVIEW  
 09.04.13

**RELEASED**  
 2009-10-29

|  |          |  |              |
|--|----------|--|--------------|
| DESIGN   | 97       | <b>DART AEROSPACE LTD</b>              |              |
| DRAWN  | RF       | HAWKESBURY, ONTARIO, CANADA            |              |
| CHECKED  | 97       | DRAWING NO.                            | REV. B       |
| MFG. APPR.   | 97       | D212-664-147                           | SHEET 3 OF 4 |
| APPROVED   | 97       | TITLE                                  | SCALE        |
| DE APPR.   | 97       | CROSSTUBE (205/212/412 LOW FWD)        | NTS          |
| DATE   | 09.09.30 | COPYRIGHT © 2007 BY DART AEROSPACE LTD |              |
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side A

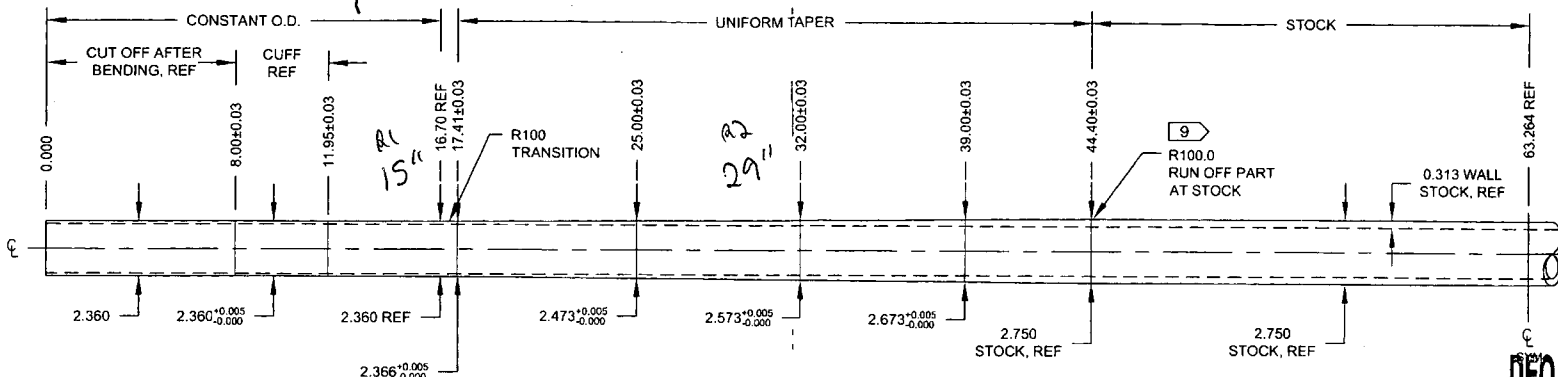
R1  
1-.166  
2-.188  
3-.209  
4-.188

R2  
1-.264  
2-.285  
3-.291  
4-.291

side B

R1  
1-.183  
2-.179  
3-.191  
4-.197

R2  
1-.271  
2-.276  
3-.283  
4-.276



**D212-664-147TRN**  
**TURNING DETAIL**

DEO ATTACHED

664-11-614  
11.07.26  
**UNDER REVIEW**  
11/08/13

**RELEASED**  
2009-10-29

|            |          |  |              |
|------------|----------|--|--------------|
| DESIGN     | 40       | <b>DART AEROSPACE LTD</b>  |              |
| DRAWN      | RF       | HAWKESBURY, ONTARIO, CANADA  |              |
| CHECKED    | 40       | DRAWING NO.  | REV. B       |
| MFG. APPR. | 40       | D212-664-147   | SHEET 4 OF 4 |
| APPROVED   | 40       | TITLE  | SCALE        |
| DE APPR.   | 40       | CROSSTUBE (205/212/412 LOW FWD)  | NTS          |
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|                             |  |                   |   |  |                                |                           |              |
|-----------------------------|--|-------------------|---|--|--------------------------------|---------------------------|--------------|
| DRAWING NO.<br>D212-664-147 | TITLE<br>CROSSTUBE ASS'Y (205 LOW FWD) | REV. B            | DART AEROSPACE LTD<br>ENGINEERING ORDER |  | D.E.O. NO.<br>D212-664-147-B-1 | SHEET NO.<br>SHEET 1 OF 1 | SCALE<br>NTS |
| DRAWN<br>90                 | CHECKED<br>ASS                         | MFG. APPR.<br>183 | APPROVED<br>MP                          |  | DE APPR.<br>H                  |                           |              |
| DATE<br>11.07.15            | DATE<br>11.07.20                       | DATE<br>11.07.21  | DATE<br>11/07/21                        |  | DATE<br>11.07.21               |                           |              |

**PURPOSE:**

REPLACE MAGNOBOND WITH PROSEAL.

**CHANGE:**

IS:

| Item | Qty<br>-147 | Qty<br>-147B | Part Number     | Description                   |
|------|-------------|--------------|-----------------|-------------------------------|
| 9    | A/R         | A/R          | PROSEAL 890 B-2 | SEALANT, AMS-S-8802 CLASS B-2 |

WAS:

|   |     |     |                |   |
|---|-----|-----|----------------|---|
| 9 | A/R | A/R | MAGNOBOND 6398 | ROCKWELL SPECIFICATION RBO-120-023<br>ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,<br>TYPE II, CLASS 2 ADHESIVE) |
|---|-----|-----|----------------|---|

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

12) TO INSTALL D2893-1 SUPPORT: ABRABE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED  
2011-07-28  
VW

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